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FOUR LETTERS



TO

SIR JAMES CLARK, BART., M.D., F.R.S.,

PHYSICIAN IN ORDINARY TO THE QUEEN AND TO THE PRINCE CONSORT,

ON

ADMINISTRATIVE REFORM,

IN RELATION TO

THE MEDICAL SCHOOLS

AND THE

EXAMINING BOARDS.

BY

ALEXANDER HARVEY, A.M., M.D.,

LATE LECTURER, SOMETIME ON THE INSTITUTES AND AFTERWARDS ON THE PRACTICE OF MEDICINE, AND
FORMERLY ONE OF THE EXAMINERS FOR MEDICAL DEGREES, IN THE UNIVERSITY OF ABERDEEN.

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“It is a very easy thing, indeed, for an examiner to find incompetent a student who has been educated at a different institution.”

Report of Speech by Professor Christison.

“The pupils are at the mercy of the examiners.”

Sir Henry Marsh, Bart.

“There are many heads, and I confess mine to be one of them, which no amount of labour would enable to carry so great a mass of details, at one time, as that which would be required to pass a rigid examination on all the subjects comprehended in the list.”

Dr. Carpenter.

“A well-weighed scheme of professional education, sound and practicable, comprehensive yet moderate in its requirements, and adapted to all, besides the many good purposes it would serve, would have the special benefit of satisfying the minds of students themselves that at each step of their progress they are in the right path.”

Dr. P. M. Latham.

By the same Author.

I.

ON A REMARKABLE EFFECT OF CROSS-BREEDING. Illustrative of the Fœtus-in-Utero, as Inoculating the Maternal with the peculiarities of the Paternal Organism; and of the influence thereby exerted by the Male on the constitution and the reproductive powers of the Female. Svo. Price 1s.

Edinburgh: WILLIAM BLACKWOOD and SONS. 1851.

“Of the various theories which have been advanced in explanation of this singular fact, of which many parallel instances are on record, none bear so much weight as that recently promulgated by Dr. Alexander Harvey. . . . For an account of Dr. Harvey’s important investigations on this subject, the reader is referred to his original papers in the ‘Monthly Journal of Medical Science’ for 1849 and 1850, or to his ‘Essay on Cross-Breeding.’”—*Dr. Kirkes, in ‘Handbook of Physiology.’*

“The subject has been most ably brought before the profession by Dr. Alexander Harvey.”—*W. S. Savory, Esq., in ‘Experimental Inquiry into the Effect upon the Mother of Poisoning the Fœtus.’*

“See an interesting discussion of this question, by Dr. Alexander Harvey, in the ‘Edinburgh Monthly Journal,’ Oct. 1849, and Oct. and Nov. 1850; and in his pamphlet ‘On a Remarkable Effect of Cross-Breeding,’ Edinb., 1851.”—*Dr. Carpenter, in ‘Principles of Human Physiology.’*

II.

TREES AND THEIR NATURE; OR, THE BUD AND ITS ATTRIBUTES. In a Series of Letters to his Sons. Illustrated with Engravings. Small crown 8vo. Price 5s.

London: JAMES NISBET and Co. 1856.

“A most interesting question in natural history, well worked out.”—*Dublin Quarterly Journal of Medical Science.*

“We have been exceedingly charmed with this volume. It is beautifully written. It may serve as a model of masterly discussion.”—*British Quarterly Review.*

“We regard this volume as a truly valuable contribution to botanical science. The question which it propounds is apparently

a very simple one—What is a tree?—but few general readers will rise from its perusal without the acknowledgment that from Dr. Harvey they have learnt for the first time what a tree really is. . . . It is the highest compliment we can pay to the work, that so admirably condensed is the style, and yet so clearly and distinctly are the propositions stated, that no abstract or summary could be given in a form more concise than what is supplied by the words of the author himself. . . . Nor must we omit to notice that the work is profusely and admirably illustrated with plates and diagrams. Altogether, the work is one which cannot fail to prove acceptable to the general reader, as well as to the man of science; to the country gentleman, the gardener, and the forester, as well as to the mere student of botany. As such we commend it heartily to our readers.” —*Glasgow Medical Journal*.

“The letters are written in a style level to the apprehension of a school-boy, and yet they are characterised by a scholarly element which will attract and please the most cultivated intellect. To the physiologist these letters will have a special charm, while to the man of fortune, who delights in his broad acres, they will suggest many valuable hints as to the management of trees, whether considered as ornaments upon his estate, or adding to its money value.” —*Evangelical Magazine*.

“Dr. Harvey does not claim originality for his theory, although he appears to have reached it by an independent process of investigation; but he certainly is entitled to the merit of patient and systematic inquiry, of clear and distinct explanation, and of an entire absence of the dogmatism which usually characterises departures from the beaten track. Whether Dr. Harvey’s theory convinces the reader or not, we can recommend his work as a pleasant and instructive little volume.” —*Edinburgh Medical Journal*.

“We believe Dr. Harvey to be correct, and commend his book to all students of natural history.” —*Medical Times and Gazette*.

III.

THE TESTIMONY OF NATURE TO THE IDENTITY BETWEEN THE BUD AND THE SEED: As given expressly by the Monads, the Trees, and the Bees, and indirectly by the Constitution of the Seed itself, the Conformation of Hybrids, and the Instincts of Mankind. Small crown 8vo. Price 2s. 6d.

London: JAMES NISBET and Co. 1857.

“His two interesting works ‘Trees and their Nature,’ (1856); and ‘The Identity between the Bud and the Seed,’ (1857). . . . In both works he has established the essential identity of bud and seed, and consequently of gemmation and generation.” —*G. H. Lewes, Esq., in ‘Sea-Side Studies.’*

FOUR LETTERS,

ETC., ETC.

LETTER I.

SOUTHAMPTON; *March 25, 1858.*

DEAR SIR JAMES,—Familiar to us as a political term, and as used, in contradistinction to Parliamentary Reform, to denote objects of national importance which men of different political opinions may unite to promote, and in promoting which they may cordially work together—*Administrative Reform* is yet by no means confined, in its principle or its application, to the great departments of State—to the Customs or the Excise, the War Office, the Admiralty, or the Commissariat. It reaches to every department in the State, to which either the Crown or the Legislature has confided the administration of offices having for their object the welfare of the community.

Connected with our own profession, there are depart-

ments answering to this description—corporate establishments, schools, colleges, universities, and boards of different kinds, charged with the *education* and the *licensing* of those that make the practice of medicine their calling. And, connected with those establishments, there are questions which relate not to the constitution they possess, or to the rights, privileges, or immunities they enjoy, but to the manner in which the specific charge just referred to is fulfilled by them: such questions as whether the education they impart is as efficient as it might and ought to be in relation to the end to be accomplished by it; whether the modes of testing proficiency are the best that could be devised for ascertaining the competency of candidates for a license to practise. Such questions fall properly under the category of administrative medical reform. And, while the experience of the last fifteen years clearly shows how difficult it is for the profession, or rather for the bodies corporate in it, to agree on questions of constitution and privilege, just as it is for the nation to agree on questions touching the elective franchise and such like; there are, I think, good grounds for believing that when those other questions shall assume a practical form, and come to engage the attention of our body, there will be a less jealous consideration and a more speedy and harmonious adjustment of them.

And it is because I think they may soon excite attention and provoke discussion, that I deem the present a fitting time to bring them under the notice of the profession. Directly a Bill is passed “For Regulating the

Profession of Medicine and Surgery," they cannot fail to do so. Whether Mr. Cowper's Bill, or Lord Elcho's, shall receive the sanction of the Legislature, or some other bill yet to be framed, one of the provisions of the law enacted will assuredly be, to secure, in return for a uniformity of professional *privilege*, a corresponding uniformity of professional *qualification*, all over the kingdom. And with a view to the attainment of this object, it will doubtless provide for the establishment of a General Council which, without itself exercising the functions of either an educational or an examining board, shall yet exert a controlling agency over all the medical schools and all the examining medical boards in the kingdom.

The passing of such a measure will make the consideration of those questions inevitable. The administrative council will at once have to address itself to those very questions, and very speedily to dispose of them. How to secure a *uniformity* of professional qualification, with schools that differ widely in the *quality* of their teaching, and with boards that differ still more widely in the *stringency* of their testing, will not be so easy a task as it may seem. Of the many medical bills that have been brought before Parliament, all have embodied a provision for securing such uniformity, while, except on this very point, every one of them has been the subject of keen discussion. There have been contentions as to the constitution of the "Council," whether it should be elected by the profession, or nominated by the Crown; and as to the constitution of the examining boards, whether the existing

boards should continue as at present, and independent of one another, only subject to control, or whether in each of the three kingdoms there should be a fusion of all the boards, and one board for each. And there have been disputes as to other points. But all parties seem to have been agreed on this one point, that the Council should be invested with the power "to require the several colleges to lay before them a scheme of study and particulars of the examination to be gone through by all persons applying to such colleges, respectively, for letters testimonial as physicians or surgeons," as well as "to *make* such *changes* in the schemes as to *them* shall seem expedient."

In the near prospect, as I trust we now are, of obtaining an enactment for regulating the profession, and of having a supreme medical Council invested by law with adequate powers to secure a uniformity of professional qualification, it does seem to me that the questions before us demand a fuller consideration, with a view to that provision, than they have yet received. With the numerous and variously constituted bodies it will have to deal with, it will, I repeat, not be an easy task for the Council to secure such uniformity.

Not, however, that the solution of those questions requires or is dependent on legislative interference. Notwithstanding present appearances, the settlement of the great question of medical reform may possibly be far distant. But, however long it may be postponed, nothing need hinder the University of Edinburgh, for instance,

chronologically the first, and still in position and character second to none, among our medical schools and examining boards, from taking up the subject of medical education and of examination for medical degrees, and making such changes in the way of reform as she may judge expedient.

For my own part, I have long been convinced that there is much that is faulty, in respect of both, in the system which at present obtains with our examining boards and in our medical schools, much that admits of improvement, nay, that no less imperatively than immediately demands reform. And of those that have had any considerable experience either as teachers of medicine, or as examiners of candidates for degrees or diplomas, there are probably few who will not admit that great and growing evils attach to the existing system. Nay, of the vast numbers composing the body of the profession, doubtless the greater number, looking back on their student-life, would readily join in the admission.

The fact is, that the evils referred to, affecting alike teachers, examiners, and students, have their source in what is in itself a real good—the greatly extended and still rapidly advancing state of medical science. During the last half or quarter of a century the science of medicine has undergone a marvellous revolution. With more exact methods and better instruments of research, each one of its several branches has attained to proportions which may truly be called gigantic or encyclopædic. It is with the *details* of each that we have of late been mostly occu-

pied ; and those details have accumulated and are accumulating to an extent that is embarrassing. 'The Chemistry of the present day has as much outgrown the Chemistry of fifty years ago, as the Glasgow of 1858 has outgrown the Glasgow of 1808. And the like is true of every other branch of medical science.¹ Moreover, within the last quarter of a century, means of acquiring information on these sciences, which formerly were comparatively disregarded, and were in fact much less available, have since attained to a high degree of efficiency, and risen into importance—books, in particular, on a level with the actual state of the sciences, continually issuing from the press, and passing into every student's hands.

The only thing that has remained unchanged—virtually at least, except in its substance and its dimensions—is the system of scholastic instruction and of examination for licence. That this should have continued as it was need not be matter of surprise. It is but one of the many illustrations, familiar to every one, of the power of prescription and of the strength of the conservative principle inherent in all long-established institutions. It is the source, however, as I said before, of great and growing evils in medical education. Teachers find that following

¹ "The tendency of all sciences is to specialization. The vast extension of which almost every department of human knowledge has been the subject during the last half century, renders it impossible for any single individual to grasp the whole of any one. . . . In Chemistry we have not only the primary division into the two great provinces of organic and inorganic, but we now find each broken up into smaller areas, to the cultivation of which different inquirers specially apply themselves."—*Westminster Review*, Jan., 1858, p. 266.

the plan which usage has enjoined, it is no longer possible for them to overtake the entire subject of their proper course, and that the mass of details they have to encounter precludes them from bestowing any adequate attention on that higher kind of instruction, the *exposition* and *application* of *principles*, wherein lay the *charm* of the teaching of former days, and wherein must ever lie the *real value* of professorial instruction. But it is on students that the evils bear hardest. Less dependent than formerly on professorial teaching, they have yet had lectures heaped upon them to a degree almost intolerable, leaving them little leisure for private study or for clinical instruction; while, as things are, they get from lectures comparatively little of that which they need most, and a great deal of that which they can learn better from books, of which, however, no *official* account is taken.

Further, in the *actual state* of the medical sciences, it has become absolutely impossible for students, within the time usually given them for preparation, thoroughly to master every one, or almost any one, of the several branches included in the prescribed course of study; and equally impossible to carry in their heads, for the length of time required, the minute particulars (mostly matters of mere memory) of so many subjects as are comprised in one, or at the most in two "grand final examinations." Nor are examiners exempt from the evils which attach to the system which obtains. Finding that the young men who come before them do not, and sensible that they cannot, reach the standard of scientific acquirement they require,

they are often perplexed how to act, and derive for the most part from the exercise of their important duties only a negative satisfaction. Convinced that were they to reject as many candidates as they ought, the system would become intolerable and break down, they reject only the palpably incompetent.

Nor are the hardships it entails the only or perhaps the worst evil of our present system. A very serious evil is, that the *essential objects* of medical education are much less perfectly attained than they might be. It is nothing in reference to this assertion that now the general body of the profession is better educated than in former times, or that it will advantageously compare in point of efficiency with that of any other country. That is not the question. For not *Art* alone but *Nature* also is concerned in the cure of disease; and to pass by the fact that Art is continually taking and receiving credit for much that is Nature's due, the real question is, whether Art is by education made as efficient a handmaid to Nature as she ought to be? Few will venture to affirm that she is; most will candidly acknowledge that they believe she is not; while many will maintain that she is still very far from being what it is desirable she should be, and that the system under which she is trained is in many respects but ill adapted to make her so. And, in connection with this point, it is a very serious question—how much of real and grievous error in Art (besides and beyond what does or may appear and cannot be disavowed) is actually *covered* by Nature, being either secretly counteracted

by her, or set without dispute to her account ; nay, often buried by her in the grave.

As a science, then, which in all its branches it is incumbent on every one to know who makes the practice of it his calling, medicine has long since outgrown the ability of students fully to master it within the time allotted for preparation. Large attainments, indeed, in this science—larger than were or could have been imposed on students fifty years ago—must still continue to be required. But I cannot believe that *attainments* which the great extension of the science has rendered *unattainable*, will much longer continue to be (as at present they virtually and in effect are) demanded,—or that so many subjects as are included in the compulsory course of study will, as is now the case, continue to be thrown into one or two final pass-examinations, equally perplexing to students and examiners. Nor am I without hope that the time is not far distant when the kind of professorial teaching which at present prevails, alike irksome to student and teacher, and the necessity for which has in a great measure been superseded by the excellence of the elementary text-books in every student's hands, will everywhere be replaced by a higher and better kind, and such as is more befitting the dignity of the professor's chair.

It has long appeared to me that the *first* step towards remedying the evils complained of must be, to *restrict* within reasonable and clearly defined bounds the scientific acquirements which shall be held *sufficient* to qualify for a licence to practise, that is, to limit and in some way *autho-*

ritatively to indicate what and how much of each branch shall be considered sufficient for that purpose ; and the *next*, to adapt the methods of teaching and of testing proficiency to the actual state of things, that is, on the one hand, to the means now so abundantly available *independently* of the schools (although emanating from them), and on the whole so excellent, for acquiring a knowledge of almost every branch ; and, on the other, to the multiplicity and the variety of *minute details* which every branch now includes, *and which no head can carry long*.

To point out in what way and by what means this may be done will be my object in two or three succeeding letters. You will find, I hope, when the series is complete and you have read all the letters, that I have advanced nothing on this important subject, nor recommended anything that is not in accordance with opinions and convictions now widely entertained. And I may perhaps be permitted to observe here, that the exceptions I shall have to take to the existing system of medical education and of examination for licence, as well as the suggestions I shall venture to submit for their improvement, are the fruit of twelve years' experience both as a teacher of medicine and an examiner for medical degrees in the University of Aberdeen, and of much longer careful reflection on the subject.

I will only further remark at present, that as regards the matter of education I purpose confining my observations to the *professional* training of medical students, and chiefly to that part of this which is carried on within the schools,

and bears on the *scientific* instruction they receive there. I shall say nothing in regard to the subject of their preliminary *general* education. Not that I am indifferent to its importance, but that it would be beside the specific purpose I have in view to enter upon it. So important, indeed, do I consider it that I have no hesitation in expressing my conviction that, in relation to the *practice* of medicine itself, to say nothing of the position and influence of the profession in society, it is in many respects of far greater consequence than the professional. Such, in fact, is my estimate of its importance, that I am free to say that were it conducted as it ought to be, with the generality of medical students, and carried to the extent that is desirable, I should be very little solicitous as to their professional education. Nay, I should nearly be content to leave students to pursue the latter very much where and how they pleased, with little or no other security for its being rightly prosecuted than a sufficient examination as to competency, to be held annually (or at short intervals), during a prescribed period of study, and in the manner I shall have occasion to propose for all students, irrespectively of their general education. Omitting, therefore, for the reason stated, all consideration of this subject, I yet cannot forbear giving expression to a hope that when the long-vexed question of medical reform shall be set at rest by the enactment of one or other of the Bills now under the consideration of Parliament, or of some shorter and simpler but equally comprehensive Bill for regulating the profession,

the preliminary education of medical students will receive from those intrusted with the execution of the law, the attention it deserves.

I am, &c.

LETTER II.

SOUTHAMPTON; *March* 31, 1858.

DEAR SIR JAMES,—Before entering on either division of our subject, there are one or two preliminary questions to be considered. What is the *object* of Medical education? And what the *circumstances* under which that object is to be pursued? The answers to be given to these two questions will serve materially to give precision to our inquiries.

It is plain that the object of medical education is to qualify those engaging in it for medical practice. It may be pursued, indeed, without any such aim; but in the point of view now under consideration, it is to be regarded simply as a preparation for important practical duties. The evils incidental to humanity in its vital relations make a ministry of health indispensable to society. So many are they and so great as absolutely to require that certain members of the community should make those evils their study, and the prevention, the cure, the alleviation of them their calling. Again, the circumstances of society are such that, of those who make the practice of medicine their calling, the far greater number must individually pursue it in all its branches—be, at once, in their own persons, physicians, surgeons, and accoucheurs—in short,

general practitioners. A very limited number may be exclusively either physicians, surgeons, or accoucheurs,—nay, may restrict themselves to special divisions of physic or surgery. The number, however, that are in a position to do so, or that society will support in so narrow a field, is relatively very small—so small that they need not be taken into account in any general scheme of medical education. Nay, even the *specialists* must pass to their several departments of practice by the same portal with the general practitioners. Further, as regards legislative interference with the profession, it is the millions composing the lower and middle classes of society, rather than the thousands composing the higher—the lower, therefore, rather than the higher grades of the profession, *i.e.*, the general practitioners constituting the mass of the profession rather than the mere handful of pure physicians and pure surgeons, that are to be regarded in the matter of medical education. And while, on the one hand, the circumstances of almost all those who make medicine their profession, and have to follow it as general practitioners, are such that they must begin to practise it, because they must begin to live by it, and maintain themselves in it, *as early* as possible—on an average within a period not exceeding *five* years from the time they join it as medical students; so, on the other hand, to a degree that does not apply to any other profession, the nature of the medical art is so peculiar, that society at large is incapable of forming any accurate judgment of the *qualifications* of medical men, and requires, therefore, to be *protected* against incompetent practitioners.

This protection, to be effectual, can be given only by the State ; not, however, by its suppressing quackery or seeking to suppress it, but by its making due provision that the recognised members of the profession shall receive such an education as, in the words of Dr. Latham, shall be at once “ sound and practicable, comprehensive yet moderate in its requirements, and adapted to all,”¹—such an education, in short, as shall in the nearest way possible make the general practitioners of England able ministers of health to the whole body of the people.

It is, then, as a preparation for important practical duties that medical education is to be regarded. It is for these duties in their widest range that preparation has to be made by every student. And is within, we may assume, the period of five years that this preparation must be gone through.

Let us next consider what this preparation includes and requires. Excluding all consideration of the preliminary general education, the professional education may be said to include two things : *first*, the acquisition of a knowledge of certain branches of science, and, *secondly*, the cultivation of the student’s own mental and physical powers. His education to be complete and really good must be both theoretical and practical ; at once *objective* as regards the acquisition of scientific knowledge, and *subjective* as regards the training of his own powers,—of his hands, his senses, and his intellect,—of his heart, too, and the moral principle within him,—viewed as the instruments by which, in his vocation and ministry, he is to apply his scientific know-

¹ ‘ Lectures on Subjects connected with Clinical Medicine ’ (1836), p. 13.

ledge to its destined ends, and in other respects discharge aright the duties incumbent on him as a professional man.

With respect to the subjective or the mental and practical part of the business of education, its object is in the main the same as that which applies to other walks of life,—the engendering of those practical habits of thought and action which are required in every department of human life,—of that practical wisdom which consists in the knowing and the doing what is right and fitting to be done in the business of daily life. There are conditions, however, peculiar to our profession which require corresponding qualities of mind. What is true of the legal, is still more true of the medical profession, that it does not consist in the mere application of a set of established rules, or of fixed, unvarying maxims. The endless variety in the combination and in the succession of the phenomena it has to deal with, as well as in the circumstances under which these phenomena occur, and which may not inaptly be designated *kaleidoscopic*, does not admit of this. It is an art into which from its very nature *probabilities* continually enter, and, varying in degree “from the highest moral certainty to the very lowest presumption,” enter largely as a main element. It has been well said by Dr. Alison, that, “in those diseases in which most can be done by art, our practice must always be guided in part by *conjecture*, because, if we wait for *certainty*, we very often wait until the time for *successful* practice is past.”¹ And in perfect

¹ History of Medicine, in ‘Cyc. of Pract. Med.’ “We must act on the

accordance with this observation, it was long ago remarked by Dr. John Gregory, that the qualities of mind peculiarly required of the medical man, “consist in a quick discernment where the greatest probability of success lies, and in habits of acting, in consequence of this, with facility and vigour.”¹

The strictly scientific part of the professional education includes, as I have said, the acquisition of a knowledge of

worst supposition, and not wait until the nature of the symptoms *demonstrate* that the malady *is* present, while they demonstrate also, at the same time, that it is well nigh *hopeless*.” (Watson, ‘Lecture (XXVI) on Acute Hydrocephalus.’)—“If a man were to walk by twilight, must he not follow his eyes as much as if it were broad day, and clear sunshine? . . . It would not be altogether unnatural for him to reflect how much better it were to have daylight; . . . but how ridiculous would it be to reject with scorn and disdain the guidance and direction which that lesser light might afford him, because it was not the sun itself!” (Bishop Butler, ‘Sermon upon the Ignorance of Man.’)

¹ ‘On the Duties and Qualifications of a Physician,’ Lecture V.—“It consists in calmly making up his mind on every occasion from the best lights which he can bring to bear upon the case, making up his mind distinctly as to the course which it is proper to pursue, and then steadily pursuing that course. . . . Our art is so imperfect, and so much conjecture interferes with correct judgment in disease, that the mind of the physician must necessarily be left in many cases, nay, in a majority, in a state of uncertainty with respect to the character of the disease he is to treat, and the best course to be pursued in its management. Now, as something must be done, he is to act according to the best judgment he is able to form, and the uncertainty which he feels should never appear in his language or manner. . . . No; whatever we decide to do, we must do it as if it were the very best thing that can be done, and as if we had no misgivings about it. There is no deception in this. It is the principle on which we act in all the concerns of life.” (Professor Ware, Philadelphia, ‘Lecture on the Character and Duties of a Physician.’)

certain branches of science. Every practical art is founded on its appropriate science, and the practical art of medicine is founded on the science of medicine as its proper basis. There is now-a-days no question as to this. The time is gone by when all that was thought necessary to make a good practitioner is, common sense, together with some routine training, miscalled practical, and one's own reading of the great book of Nature. The only question is as to the kind and amount of that scientific knowledge, and as to the best way of imparting, and acquiring, and testing it? That, in fact, is the question we have to consider.

Let us glance for a moment at the several branches usually regarded as constituting the science of medicine. They may be divided into the *theoretical* and the *practical*, the former including Anatomy, Physiology, Pathology, and Therapeutics, to which may be added Materia Medica, Chemistry, and Botany; the latter including Practice of Physic, Surgery, Midwifery, and Medical Jurisprudence and Police.

This, I think, is a tolerably complete enumeration. Some of the examining boards do not exact a knowledge of every one of these branches, while some of them require others besides, such as Natural History, Comparative Anatomy, and General Physiology. But the greater number of the boards require those first named. And it may be observed that for instruction in all these branches provision is made in all or almost all our medical schools.

With regard to those several branches, theoretical and practical, it is to be borne in mind that every one of them

is of boundless extent. I mean boundless as regards even the mass of details already accumulated, and the extent of the literature already bearing upon it. Each has even now attained to vast proportions, and that, too, within the memory of men among us, and each like a coral island in the Pacific is day by day having additions made to it. 'This is a fact. It is a fact, however, which, gratifying as it is, demands a *practical recognition* at the hands as well of examiners as of teachers. 'Take Botany, for example, and look at it in connection with Balfour's '*Class-Book*;' or Materia Medica, in connection with Pereira's '*Elements*;' or Physiology, in connection with Carpenter's '*Principles of Human Physiology*;' to say nothing of his '*Principles of Physiology, General and Comparative*,' which last, so rapid is the progress of this science, is even now undergoing a process of "reproduction by fission," and growing up into two separate volumes, each of which will, no doubt, ere long, far exceed in bulk the enormous parent volume. 'Take Practice of Physic and of Surgery, along with Watson's '*Lectures*' and Miller's '*Principles*' and Miller's '*Practice*.' All these, excellent as they are, and students' books, mere manuals and text-books, are books of huge dimensions. "Hand-books" they are, but not "handy-books" all of them even to students. Behind them, we have the Cyclopædias of '*Anatomy and Physiology*,' and of '*Practical Medicine*,' Copland's '*Medical Dictionary*,' and Cooper's '*Surgical Dictionary*.' And we have, besides, treatises on special divisions of distinct branches; monographs, of which it may suffice to name Mackenzie's

on the ‘*Diseases of the Eye*,’ an encyclopædia in itself.

We are now arrived at the point from which I purpose starting in the farther consideration of my subject. We have seen what the objects of medical education are, and what this education includes. We have seen what the range of the duties for which preparation has to be made by each student is, and what the time within which that preparation has to be made. Within a period of five years, commonly indeed of four, the student has to qualify himself for the life of a general practitioner; and, with this view, he has to acquire a knowledge of certain branches of science, and otherwise fit himself for the right discharge of the duties that await him.

What now is the provision made in our medical schools, in accordance with the requirements of the examining boards, for the carrying on of this work of medical education? And what the mode adopted by the examining boards for ascertaining the qualifications of those that apply to them for a licence to practise?

I. Our medical schools, it must be admitted, endeavour to provide for the practical and subjective, as well as for the objective and theoretical parts of this education. They embrace provisions for attendance on hospital and dispensary practice, and for clinical instruction, including even the actual charge of patients and of lying-in women,—provisions for acquiring by dissection not merely a practical knowledge of the human body, but skill in the delicate

handling of the knife,—provisions also for becoming intimately conversant with the manifold articles of the materia medica and the compounding of drugs, as well as with the modes of conducting chemical and pharmaceutical processes, of using the microscope and such like. With regard, however, to the higher parts of this department of medical education, it is plain that the schools cannot do a great deal. Medical students cannot be allowed, to any great extent, to take the actual oversight and care of the patients in our hospitals and dispensaries, still less to perform the higher operations in surgery on the living body. Still, I think that, indirectly at least and under a different system from that which at present prevails, the schools might do considerably more than is done in this direction. Practical habits of *action*, indeed, in their highest degree, can only be formed by putting one's own hand to work, and, in relation to medical practice, can only be acquired therefore, by most, after the business of professional life is entered upon, *i.e.*, after the licence to practise has been granted. But practical habits of *thought*,—practical habits of looking at things and of putting things together in one's mind, without which the former are of little value, and combined with which and with scientific knowledge they constitute in its real sense the *practical* man, may be made an object of cultivation during the whole period of student-life, and be very largely developed, as well by the right use of such opportunities in the way of actual experience as must be available to every student, as by the right conduct of the more strictly scientific (or objective) part of

his professional education. And to the culture of such habits, as one primary object of the whole course of study, everything in the schools ought as far as possible to be made conducive. Such habits may be very effectively cultivated, even by the careful study in private of suitable *books*,—of some that might be named bearing on the proper studies of the student, but best of all, perhaps, of a book too little known to most students, Bishop Butler's '*Analogy*.' Himself one of the most *sagacious* of men, the thoroughly practical character of his mind is reflected from every page of his great work, and the student who will diligently apply himself to it so as to master and make himself familiar with it, can scarcely fail to catch Butler's spirit, and have his sagacity made in some degree a constituent of his own.

Much more, I say, might be done by the schools in this direction than has ever yet been attempted by them. Still, I admit that what the schools have mainly to provide for is, the theoretical or scientific part of the student's professional education, *i. e.* the acquisition by him of a knowledge of the several branches of medical science. And with regard to this, the provision actually made may be said to be, and that exclusively, the delivery of *Lectures*. The system followed and the only one *enjoined*, for receiving and imparting the scientific knowledge required, is a system of teaching by lectures, embracing every branch of medical science, necessarily extending over several years, occupying throughout a large share of the student's time, and attendance on which is made *compulsory*.

11. What, in the next place, is the mode followed by the examining boards for ascertaining the competency of the student when he comes before them as a candidate for a licence to practise?

First of all, with very few exceptions, and to a very partial extent with those that do, they subject him to no scrutiny as to his strictly practical or subjective attainments. For this omission I have no quarrel with them. Much cannot in fairness be demanded of the student in respect of such attainments, while neither time nor circumstances admit of any lengthened or searching examination of this kind. What the boards look to or at least regard chiefly is, his scientific attainments. And how do they ascertain these? By examining him either *vivâ voce*, or, in addition to this, by written exercises, on the several branches of medicine—*generally*.

I say *generally*, by which expression I mean without reference to any rule, measure, or standard, other than the *full extent* of each branch, and the *whole literature* of each. This is the characteristic feature of the examinations, just as lecturing is the characteristic feature of the system of education. The examining boards acknowledge no “*Statutes of Limitation*.”

Let us look at this matter a little more closely. I wish, however, to premise a single observation. What, with regard to the scientific attainments of the candidate, is desirable, what is really possible, and what examiners have a right to demand, is, that his knowledge shall be complete and accurate as to the *essential* facts, and the general

principles of each branch, and as to the established rules of medical practice. The more extensive his knowledge is, provided he be proportionally intelligent, so much the better; but a very intimate knowledge, of minute details at least, examiners have no right in fairness to insist on. They have a right to require of each candidate that he shall have mastered the great outlines and the more important details of each branch, and that to this extent his knowledge is comprehensive, *i. e.*, not confined to individual parts of it, to the ignorance of other parts perhaps equally or more important to be known. Anything, however, beyond this would be an unreasonable exaction. Even in regard to those details that admit of direct application in practice, it is worth while keeping in mind to what an extent it often needs that familiarity with them which practice alone can give, and which the student cannot have, to impart a clear apprehension of them to the mind and fix them there.

But what *is* the rule or measure instituted or recognised of the scientific knowledge required of the candidate? Such a measure I mean as, during his five years' course of study, he may have looked forward to, and have diligently worked by, and may now, in his day and hour of trial, meet his examiners upon, with some feeling of confidence, that he is standing with them on something like even ground. *There is none.* He must be prepared at his peril to answer any question, and to be scrutinized on any point. It is on the several branches of medicine generally that he is examined, without regard to any prescribed rule or standard, without regard to the fact that each branch is

absolutely without limit, and without regard to his having had but five years to acquire a knowledge of them all. "Haller surely knew what anatomy is, and how much goes to make an anatomist; and Haller has estimated the cost at twenty years of time and labour."¹ Be it so. What, according to this way of reckoning, would be the time and labour needed to make one a proficient in physiology also, in pathology and therapeutics, in botany and chemistry, in midwifery, surgery, and physic? And yet, in principle, the candidate after five years of study is liable to be examined on them all as if he were thoroughly master of them. The characteristic of the existing system is, that, while each branch of medical science—nor this alone, but almost every part of each—is of boundless extent, the examinations are general. On each branch, not only may all the manuals, the most approved of which the student may have carefully studied; but all the monographs, one title of which he cannot have heard of, be brought by the examiner to bear upon him. A recent American writer, referring to this very point, not inaptly calls the existing system "our *omnibus* system," and its essence (although the system is of English growth), "the true American notion that nothing less than too much is plenty of anything."² And Dr. Latham, after remarking "what a crowd of wonderful things are marshalled by authority around the entrance of our profession," and giving a list of the things in question,—“formidable enough,” he says,

¹ Latham, lect. i, p. 9.

² Elder's 'Biography of Dr. E. Kent Kane,' chap. iii.

“in their general display, but not half so formidable as their representation in detail,” very justly observes that, “when we recollect what space of time the majority of men really can give to their education, the whole affair becomes *inexpressibly ludicrous*.”¹

But you will say, “There is surely some exaggeration here: examiners are discreet and make allowance for circumstances.” We shall see when we come to consider the actual working of the system. Meanwhile, premising that a master’s discretion is a very uncertain guide for even a willing servant to work by, who has the labour of five servants laid upon him, let me call your attention to a statement which Professor Christison is reported to have made at a meeting of an association of graduates held at Edinburgh last year. “It is a very easy thing, indeed, for an examiner to find incompetent a student who has been educated at a different institution,”—a statement which he is said to have prefaced with this other, that the thing in question is an “*undoubted fact*, which as an examiner he has had *ample* opportunity of noticing.”² I will not inquire whether it would not be possible for a London professor of materia medica to reject Dr. Christison himself on that branch. But this I will say, and I speak from sufficient experience as an examiner, that, confining its application to a board that is *discreetly* stringent, Dr. Christison’s statement may be thus otherwise rendered: “It is a very difficult thing, indeed, for a student to *satisfy* an examiner

¹ Lect. i, p. 10.

² ‘The Scotsman,’ Feb. 17, 1857.

who has not also been his *teacher*.” And thus rendered, it both justifies the representation I have given of the existing system, and points to the *principle* of the *only* system (not by any means, however, one involving a board composed of teachers), that will ever, in my opinion, work well—well for the efficient attainment of the object for which the examinations for licence are held, for the solid satisfaction of examiners and students, and for the right conduct of the great work of medical education, over which the examinations exert anticipatively a powerful reflex influence.

I am, &c.

LETTER III.

SOUTHAMPTON; *April 5, 1858.*

DEAR SIR JAMES, — In this third letter, I proceed without any preamble to consider in detail the existing arrangements in regard both to medical education and the examination of candidates for licence.

I. And *first* as to medical education, as carried on within the schools, and having for its object the giving and receiving of instruction in the several branches of medical science.

The means employed, and that to the exclusion of every other, except in respect of one or two of the branches (*e.g.* anatomy and chemistry), in which practical instruction is given, are, as we have seen, the delivery of lectures. Under the head of lectures I include everything that accompanies them in the way of ocular demonstration, the exhibition of drawings, specimens or preparations, experiments, and such like; and I include also the occasional or stated examinations of the pupils on the subject of the lectures delivered.

Now, I admit that lectures are a very valuable means of instruction. Not in one only but in many ways, the living

voice coming from the professor's chair has advantages so peculiarly its own, and so great, that I should consider it a retrograde step in educational reform to dispense with it.¹ But making this admission, I confidently maintain that in point of *relative* importance, lectures stand on a widely different footing from what they once did. Formerly indispensable, they are so no longer. On every branch we now have *books* in which the scientific information required is set forth, and from which it can be acquired in certain respects much better than from lectures. And I maintain also, that as things are,—as the kind of instruction now in question is carried on in our schools generally, and having regard, on the one hand, to the *quality* of the instruction imparted, and, on the other, to the *amount of attention* given to it by students, the good actually resulting from it bears no adequate proportion to the time and labour bestowed upon it.

Under the general name of lectures, two very different kinds of instruction may be given,—the one purely elementary, and in its essence descriptive; the other philosophical (critical, exegetical, judicial, and withal practical), and descriptive only in respect of essential details. The former proceeds on the footing that the student is as yet ignorant of the subject taught, and has for its object to

¹ “A ‘Reading,’ by Mr. Charles Dickens, is something *sui generis*, a happy blending of the narrative and dramatic style, by which the author gives *additional* colouring to his already elaborated work, and astonishes the *auditor* by *revelations of meaning* that had escaped the *solitary reader*.” (‘The Times,’ April 16, 1858.)

impart to him a complete view or a full knowledge of its facts and principles. It embraces therefore a minute detail of these, and is to a greater extent didactic than argumentative; while it involves necessarily, if the subject be extensive, a proportionately extended course or session. The other presupposes on the part of the student a knowledge of the subject, some fair knowledge at least of the first principles and the main facts of it; and, eschewing minute and merely descriptive details, deals chiefly with the higher relations and the practical applications of it. At once philosophical and practical in its whole aim and spirit, the exposition and application of principles may be said to constitute its characteristic feature, and the development of the higher faculties of the student's own mind, quite as much as the imparting of information, its main object.¹

This higher kind of teaching may not inaptly be likened to the charge which a judge delivers on a case (whether civil or criminal) to the jury before which it is tried, and who have to return a verdict upon it. The jury already know the details of the case: they have heard the evidence

¹ "We have always thought it to be the peculiar value of lectures, as distinguished from systematic treatises, that the lecturer can bring himself (if he have the proper aptitude for his vocation,) into far closer contact with his auditors, than the author with his readers; and can more forcibly impress them, not only with his own personal convictions, but what may be still more important, with his *modes of thought* upon the subjects he has to discuss before them. For, after all, it is not a body of settled doctrine, which the medical student in these days has to acquire." ('Westminster Review,' Jan., 1858, p. 268.)

bearing upon it, and they have formed certain conclusions in regard to it. The judge addresses them accordingly. His object is to aid them in arriving at a sound conclusion and the finding of a true verdict. And with a view to this, he merely recapitulates the leading particulars of the case, dwelling only on those which it is specially important for them to bear in mind; and he then proceeds to sift and weigh the evidence adduced, and, likewise, to apply the facts as they truly appear, together with the principles or the express enactments of the law, to the questions which the jury have to decide. But he discards a minute detail of the whole case, *as being what the jury are already familiar with*. And this kind of teaching, which may be said to have its *analogue* in the *clinical* course, may be made thoroughly systematic, *i.e.*, the entire subject embraced in the course of instruction may be regularly gone over in its order. And it may be done too, I incline to think, in a shorter time than the other kind demands.

It is the former of these kinds of oral teaching, *viz.*, the elementary, that obtains in our schools. To a certain extent, indeed, the other obtains also; but its soul is smothered and its substance buried in the mass of details which the system followed necessarily involves. There is but little scope given for its exercise, and from want of cultivation it really obtains, in its highest degree, to a very limited extent. It was this higher kind of teaching I had in view when I spoke, a little ago, of the living voice having advantages peculiarly its own—advantages which the dead

book cannot supply. Yet it is this kind, which now-a-days is the *only* kind needed or of any *real value*, that we have so little of in our schools.

The fact is, that, while circumstances have entirely changed, the lecture-system has, through the sheer force of habit, continued to be, *in principle*, what the circumstances under which it originated necessarily made it, viz., primarily elementary. Nor this alone. Retaining this elementary character, the advances made in every branch of medical science during the last quarter of a century, and very particularly in the way of *details*, have in a great measure rendered it irksome to lecturers and wearisome to students. The ill-favoured and lean kine have eaten up the well-favoured and fat kine. The *minutiæ* of our teaching have well nigh cast out the *principia* from our teaching. Let me explain. Introduced at a time when books were scarce and dear, and when learning and knowledge were confined to a few, lectures were almost the only available means of instruction. Introduced also at a time when the medical sciences themselves were comparatively limited in their extent, the known facts or recognised data inconsiderable, lectures were then less descriptive of particulars and more rife in speculation and argument. The memory of the hearers was less burdened, their powers of imagination and reasoning more engaged. Their interest, therefore, in what was taught was greater, and their attention more easily sustained. There were giants in those days *attracting* crowds of *willing* students from all parts. There might be giants again under a better system than we have.

As it is, enough is known of the value which students attach to the existing system to make it certain that it holds its ground solely because attendance on it is made *compulsory*.

Moreover, in bygone days, a course of lectures once prepared sufficed without essential change and with comparatively little revision for the professor's lifetime, so slow then was the progress of discovery. All this is changed. "A troublesome man, Mr. Davy!" was the mournful ejaculation of a professor of chemistry already old when Sir Humphrey began those experimental investigations which directly and indirectly revolutionised the science. Nor is this a solitary case. Lecturers on other branches, in all our schools, have felt and grumbled at the pressure made upon them in their later years by the rapid advances in their several sciences, and, still more, by younger men industriously gathering up, methodising, and publishing in forms available to students, the scattered fruits of scientific research.

Further, with augmented labour and still daily increasing difficulty in teaching, with diminished emoluments from teaching, owing to the vast multiplication of schools, with teaching made more than ever subordinate to private ends in other fields—all tending to deteriorate its quality; with far less need of such teaching by reason of the ample supply of text-books of the best description; and with a greatly less interesting kind of teaching, from its more descriptive and didactic character, the whole system has been *extended* to a degree unknown in former times, the

courses increased in number and lengthened, attendance made daily, and with certain branches two or three separate courses of each required. Instead of laying down (so to speak), in adaptation to the wants and circumstances of this age, a few trunk-lines of railway, with connecting branches, and providing a sufficiency of capacious first-class carriages, we have gone on multiplying the old roads and the old conveyances. A system which has in many respects outlived its day, has nevertheless been magnified and ramified. Lectures, which the student attends because he must, but need not attend to unless he please—and the necessity for attending to which he knows and feels has in a great measure been superseded by the number and the excellence of the books within his reach, or in his hands—have been *heaped* upon him, notwithstanding. Lectures have, in fact, become a burden on the student, almost too heavy for him to bear. They have left him little time for collateral pursuits, such as his own taste or inclination might lead him to, and in prosecuting which his mind might eventually receive its highest development,¹—very

¹ “Dr. Baillie was an anatomist, and Dr. Babington a chemist; . . . and the favourite pursuit of each served, by its very use and exercise, to perfect their understandings according to the mould in which they were originally cast. . . . The fruit of their knowledge, to the two eminent men in question, was nothing more than the ordinary fruit, . . . but its measure was large. Their knowledge of anatomy and chemistry served them for all the purposes to which they are immediately applicable, in the daily exercise of their profession; and being in harmony with the natural bent of their minds, it still kept them striving after accuracy in all their investigations, and confirmed them in the habit and skill of appreciating the truth.” (Dr. Latham, loc. cit., Lect. i, pp. 15, 16.)

little for the pleasant and wholesome exercises of his debating medical society, and much too little for hospital or dispensary practice. "So pressing upon the student's mind and time (says Dr. Latham) is the necessity of attending a multiplicity of lectures, that he has neither attention nor leisure left to bestow upon the observation of diseases, and the effects of remedies."¹

I have said that the lecture-system keeps its ground solely because attendance on it is made compulsory. Let us attend to what Dr. Whewell says on this point: "Even when the matter is interesting, and the manner striking, how rarely does the lecturer collect and keep together a voluntary audience in England! And if his topic be a subject of exact science or critical research, we are certain that his hearers will soon be reduced to a very few students, and perhaps a few personal friends. . . . It may be possible for the lecturer to draw together an audience by treating some popular subject in a striking manner; but he must have very crude or very visionary notions, who thinks that the attendance of students upon a solid, unambitious course of lectures, on a subject in which little of novel views or striking illustrations could be introduced, would be diligently and regularly followed by voluntary students."²

I do not quote these remarks to put them to the use Dr. Whewell makes of them, as an argument against the lecture-system altogether, but to urge that a system which

¹ Loc. cit., Lect. i.

² 'Principles of English University Education,' 1st ed., pp. 69, 70.

can maintain itself only by whip and spur, and is not now needed to the same extent as formerly, should be kept within reasonable bounds, greatly curtailed, and radically reformed. I protest against its being exclusively or chiefly relied on, as a means of primary instruction, or made use of for the purposes of rudimentary teaching; and I protest against the number and the length of the courses. But I am no advocate for its abolition, or for attendance on it being made optional. I consider it too valuable to be ever done away with; and, while I think the evils of it might be got rid of, I think also, and will hereafter endeavour to show, that the good that is in it might be multiplied tenfold.¹

II. So much meanwhile for the existing system of

¹ "Is there not over much lecturing? are some subjects, and parts of some subjects, suited for the lecture-room? is the student, with plenty of good text-books, now, as formerly, *dependent* on lectures for his information? is it necessary, therefore, that *everything* in a science should be gone through in lectures? even in demonstrative sciences, like anatomy, are there not many details, of no particular physiological import, which are *unsuited* for the lecture-room, being attainable only in the dissecting-room? and is the system of lecturing on *details* and *mere information-giving*, not an encouragement to the human-nature tendency to the memory-and-taking-on-trust system, as opposed to the *true system of training the student to observe and think for himself*? These questions are too large to be discussed here. We will only add, on the other hand, that the recent or present outcry *against* lecturing is a *reaction*, which is very likely *to be carried too far*. There should be *thorough* education in the *principles* of the art, and the sciences on which it is founded; and lectures by masters of these sciences are *vital* towards such education. . . . The lecture-room is the place for the demonstration and discussion of *great facts and principles*." ('Edinburgh Medical Journal,' April, 1858.)

medical education. Let us next consider the existing system of examination for licence.

I have already pointed out in what way the qualifications of the candidate are tested (Letter II, pp. 23—25). He is examined, as I formerly observed, on the several branches of medical science generally, *i. e.*, without reference to any rule or measure other than the full extent of each branch; and, it might have been added, without reference to any criterion of fact, or doctrine, or practice, other than the examiner's own apprehension or estimate of it.

This I consider an exceedingly bad system: in the actual condition and advanced state of the medical sciences absurd in itself, unjust in principle, and injurious to the cause of medical education.

On the one hand, the extent of each branch is so vast, so absolutely without limit, that it is utterly impossible for the student within the four or five years given him for preparation, and supposing him to use his utmost diligence during the whole of that time, so to master the details as to be adequately prepared on every point. It may be questioned whether every examiner would acquit himself creditably if examined thus generally, even on his own branch alone, by a board of students! Very often, while sitting as an examiner at the examination-table, I have made it my business, when my colleagues were engaged with a candidate, to put myself in imagination in the latter's place, and to note what answers I could give to the questions asked of him. And not unfrequently, I have thus had occasion to find myself in the position of a re-

jected candidate. Still oftener, I have had to remark how much a favourable start, or the reverse, the sort of questions put, the general drift or turn of the examination, the candidate's retaining his self-possession or losing it, in short, how much purely accidental circumstances have had to do with one's getting through, or being rejected. A large part of every such examination embraces details that are matters of memory merely, while memory is essential to every part of the business. Yet it is this very faculty, the exercise of which is dependent on conditions peculiar to itself, and beyond the direct control of the will, which is especially apt to fail on occasions of this kind, and which, if the candidate get dashed at the beginning by a question inconsiderately or roughly put, may fail altogether even in regard to matters of familiar knowledge. "A most plain and easy framing of the question, even containing in virtue the answer also" (as George Herbert says), till ease is gained and confidence assured, is not more necessary in the catechising of children than in the examining of most medical students. Nor, in order to real satisfaction on both sides, in this kind of work,—in order to simple justice being done the weaker party, and to a perfectly fair estimate of what he knows and understands, whether student or child,—is a catechism more necessary for the one than an examination-book (or its equivalent, if such there be else)—limiting and exactly defining the subject-matter of the examination,—for the other.

On the other hand, the apprehensions even of matters of fact, and still more of the relative bearings of facts, as well

as of medical theory and practice, entertained by different persons, and developed in different schools, are notoriously very various. Very few look at the same thing in the same light, or from the same point of view; and, while every examiner has somewhat peculiar to himself in this respect, some examiners have notions very peculiarly their own. The advantage the candidate enjoys when he has attended beforehand the examiner's lectures, if the latter be a teacher also, or has had access to some book containing the examiner's views, and the disadvantage he labours under in the absence of such opportunities, many have experienced, and all can understand. I have myself known examiners who held views so entirely their own, as almost to make it essential to have attended their course, to escape being rejected by them at the examinations for the M.D. degree. And I have a lively recollection of the singular satisfaction with which I underwent the examination of a professor at Edinburgh, whose lectures I had not attended, but with whose 'Outlines' I was thoroughly familiar. The advantage must of necessity be always on the side of the examiner; but, as things are, it is not always sufficiently considered how great the disadvantage on the side of the candidate is, nor yet how unsatisfactory from that very circumstance the examinations must often be, with those boards that are exclusively examining, or with those others that are educational also, but admit candidates to examination without "residence," and that, too, as regards candidates who may be in reality well prepared. The "undoubted fact" testified to by Dr.

Christison, and referred to in my last letter, finds its solution here. Wherever the examinations are real—not a sham, and embrace all the branches of medical study, it is, I apprehend, very difficult, under existing arrangements, and in the actual state of the medical sciences, for a candidate to pass who has been educated by others than his examiners, and elsewhere than at their school. And the reason is obvious. Trained at a different school, and under a different system, with ideas and habits of thinking acquired at that school, he is subjected to a scrutiny he is not prepared for. There is no common ground for him and his examiners to stand on. For themselves, of necessity, the examiners chalk off from the vast and interminable field of their science certain well-defined portions, within which they keep, and within which they work each after a fashion of his own; but they prescribe to the candidate, as the arena of trial, the *whole* of that field, much of which is a *terra incognita* to themselves, and not a little of which last may be the part best known to him. Well might Sir Henry Marsh say of this whole business, “as now conducted,” as he does in his letter to you of Dec. 12, 1838,¹ “Its *wide range* gives a *hopelessness* as to being fully prepared, and the health of many has been permanently impaired. The pupils are *at the mercy* of the examiners. . . . Those who are most flippant, least disturbed by *mauvaise honte*, are, I have found in many instances, the best answerers, but the really worst informed.

¹ ‘Letters on the Proof Report of the Committee of the Faculty of Medicine, University of London.’

. . . In one word, nothing can be worse than the present system.”¹

There is one other feature of the examination system that demands attention. It is this: that there is but one final examination, or at the most two. Within my own recollection, there was nowhere more than one such examination—embracing too *all* the branches of medical science. With some of the boards this is still the rule; but with most, there are now two pass-examinations, taken in different years, and between which the several branches are pretty equally divided. Founded on the recognition of a positive evil, this division of the examination into two goes but a short way to remedy it, and the reasons which led to the division seem to me sufficiently cogent to warrant the extension of it. There are still too many subjects crowded into each of the two examinations, *e.g.*, Chemistry, Botany, Materia Medica, Anatomy, and Physiology, into one; Surgery, Practice of Physic, Midwifery, and Medical Jurisprudence, into the other!

On this point permit me to observe that, while it is right that every student should learn the special details of each branch, and that within reasonable bounds he should be examined on them, it is quite unnecessary for the ob-

¹ I wish the heads of our examining-boards would read, and consider in connection with the existing system, what is said in St. Matthew's Gospel (xxiii, 4) touching the laying on of heavy burdens on men's shoulders,—and, likewise, what is said in the book of Exodus (v, 16) concerning the making of brick, without straw to make it with.

ject for which the licence to practise is granted that he should *retain* them in his mind. Without *constant* attention it is impossible for him to retain them, nor would it be of any real use to him to do so, even if he could. It is sufficient for all the purposes of his education, and for the business of his after-life, that he should *once* have known them. In as far as they may be needed afterwards, they can easily be made available. They have not then to be re-learnt, but only to be revived. To suppose, however, that they are so to be learnt, in the first instance, as to be *permanently* remembered and made, as it were, “payable on demand” in all time coming, is to over-estimate their real value, and the purpose which they serve. For many of them are of value, not for any direct use that can or is ever likely to be made of them in practice, but for the illustration they afford of general principles, or for the right understanding of the broad outlines of the subject of which they form a part, or of its relations to other departments of knowledge. Nor is it unimportant to remark, that a very large part of what the student has to learn in that way serves no direct purpose beyond the *cultivation* of his mind, and that its acquisition is enjoined for the like reason (to use the well-known simile of Bishop Berkeley), that “certain kinds of crops are raised, which is, not for the sake of the fruits, but to be ploughed under as a dressing to the soil.”¹ It has, accordingly, always seemed to me very hard that, with barely time enough for

¹ “Locke has scarcely exaggerated when he says—that he would deem the study of mathematics an advantage on the hard, or, if you will, impossible

all he has to do, the student should be obliged to keep fresh in his mind for two or three years together, materials which have long since served their purpose.

From the several circumstances I have mentioned—the vast extent of each branch, and the large number of branches included in the course of study; the crowding of the several branches into one or two examinations; the absence of a common ground as to each on which both candidate and examiner can meet, and the peculiarity of views entertained by examiners,—the candidate labours under a very serious, and, as I think, an *unfair* disadvantage in undergoing his examination. And it may thus happen that a candidate on the whole well-prepared and really competent, will fail to make a good appearance before one or more of his examiners, and be rejected.

At the close of my last letter, I said that, anticipatively, the examinations for licence exert a powerful reflex influence over the preparatory business of education. Let us now look at the existing system from this point of view :

“Where too much is exacted, too little will be learned; excess on the one hand naturally leads to defect on the

condition, that, at the close of his studies, the student should have forgotten all the facts he had learnt,—because the habits of patient thought and investigation acquired would be worth all the labour they had cost him.” (Earl Stanhope, ‘Speech on Installation as Lord Rector of Marischal College and University,’ March 25, 1858.)

other.”¹ In these words, Dr. Latham has very happily expressed what I believe to be the actual results on the large scale of our present system. The subjects of examination might be so *circumscribed* and *defined*, as to enable the student to see his way clearly to a definite object in the prosecution of his studies, and to work after it with a will; while the examinations, increased in number by subdivision, might be so *distributed* as to exert a steady and continuous pressure on him during the whole period of his training. But they are not so. And, accordingly, with the two examinations either appalling or perplexing him by the number, and the variety, and the magnitude of the subjects included in them,—and so timed that the first examination treads on the heels of the second, while preparation for the second has to be made concurrently with *earnest* preparation for the first,—too often alas! too long deferred, what other result can follow, or need examiners expect, with the *majority* of students, than *disappointment*?

Not that, in general, examiners are unreasonable. They do the best they can under the circumstances. But I fear their work is to a large extent unsatisfactory. Exacting more than they have a right to expect, too little is not seldom accepted by them as sufficient. A professedly high standard is not always really a high one. If really high, and fairly adhered to, either the examining board is an educational institution also, and the candidates have for the most part been taught by the examiners, or, if not an

¹ ‘Lectures, p. 12.

educational institution, it passes comparatively few. The latter may not reject many, but this because only a small number, and these the better class of students, come forward,—the known stringency of the examination deterring most others, who go elsewhere—content with a less esteemed testimonial of proficiency.

One often hears it said, “What matters it *where* one passes. One puts M.D., or Surgeon, after his name, and no one knows or cares where he got his diploma or degree.” I will not particularise, lest I should give offence, than which nothing is farther from my design; and, hitherto, I have had chiefly in view the evils attaching to the examinations as conducted by the more stringent of the boards. But it is undeniable that some boards are lax as compared with others, examine on fewer subjects (although they may require attendance on all), have but one examination, and pass a larger proportion and altogether a large number of candidates. The evils resulting to the cause of medical education from the system of examination, as conducted by these less stringent boards, lie, so far, in a different direction from those hitherto considered. They lie in the direction rather of laxity of application to study. With need for the utmost diligence during the whole period of student-life, and with temptations to idleness more in number, and greater, than beset the students of any other profession—the *anticipation* of the ordeal that awaits them is the only pressing inducement to exertion with most students, the only certain check they have against idleness. No doubt, for the most

part, they all start well. The motives which have led them to make choice of medicine for their profession, the hope of attaining to eminence, if not to wealth in it, as well as the novelty and the interest of their earlier studies, make most of them work well for a time. But these motives soon cease to operate, and the examinations are then the only thing that can effectually weigh with them. I know at least of no other. The provisions taken to secure their regular attendance at the lectures, are provisions only to secure their bodily presence there: they do not reach the mind; and, as “at sermons men may sleep or wander,” so may students at lectures. There is no constraint upon them to give heed to the instruction imparted. The exhibition of prizes and certificates of merit, adopted in some schools, exerts but little influence on the mass of students. The examinations for licence are, in fact, the only stimulus to be relied on. But does the one examination of those less stringent boards, serve as an effectual incentive to diligence throughout, to those students who resolve to rest satisfied with the testimonial they grant? I apprehend not. With a large number of students it certainly does not. As students, indeed, they have had no personal experience of it; but the character it bears is known to them, and they know the habits of those among them who have gone through it with success, and what their acquirements as students. They can measure themselves accordingly, and thus form a not very inaccurate notion of the kind of ordeal that awaits them. And when their own time comes, although conscious often that they have idled away

a large part of their time, and have pursued their studies irregularly and fitfully, that they are ignorant of much that they ought to know, and that their passing, or failing to pass, is very much a matter of chance, they will many of them take their chance. Aware that if examined on certain subjects, of which they are profoundly ignorant, they are sure to be rejected, they will yet trust to the chapter of accidents, and go forward. Others, in like circumstances with themselves, and of like habits as students, have done so, and been fortunate enough to pass. The like good fortune they hope will attend them. At the worst, they can only be "plucked:" others besides have been plucked, and yet have eventually got through. A spasmodic fit of "reading up," sustained for three or six months, and the help of a "grinder" will stand them in good stead next time; and next time they can reckon somewhat on the principle of *compassion* in the breast of the examiners.

I am, &c.

Yours for the cause

LETTER IV.

SOUTHAMPTON; *April* 28, 1858.

DEAR SIR JAMES,—I am very sensible that it is often much more easy to discover the faults of a system than to see clearly how best to correct them,—much more easy to get persons to acquiesce in condemning a bad system than to concur in reforming it. And with this impression on my mind, I wish the observations I am about to submit, however confidently I may seem to offer them, to be regarded merely as suggestions towards a better system of medical education, and a more excellent way of testing the qualifications of candidates for licence.

The general nature of the changes to be proposed has been already indicated. Many even of the specific suggestions will have been apparent from what was said in former letters. It will be necessary, however, to present them more fully and in greater detail than I have yet done.

I. And, *first*, as to Medical Education.

1. With regard to *lectures*, I think, in the first place, that considerable abatement in the way of attendance on the systematic courses might very advantageously be made.

The Universities, indeed, leave nothing to be complained of, *so far*, in this respect, requiring as they do attendance on only one course of each of the several branches. It is otherwise, however, with the Colleges of Surgeons and with the Society of Apothecaries, which require double or even triple courses of certain branches. In the next place, I think the winter courses might be *shortened*. A six months' course, with daily attendance except on the Saturdays, seems to me much too long. Both the lecturer himself and his pupils get wearied of it long before it comes to an end. It is, besides, spread over almost the whole of that season of the year which most persons find best suited for private reading and sustained mental effort in the study. For this, the great length of the winter session, the multiplicity of lectures, and the daily attendance on them, often leaves little leisure to the student. It obviously curtails too, as Dr. Latham observes, the time that ought to be devoted to hospital attendance. Respecting this feature of our lecture-system, however, I would only submit to those whom it concerns—whether a shorter session, or a smaller number of lectures during the session, would not suffice, if the lectures were of a different description from what they are at present.¹

¹ In the arrangements connected with the Faculty of Medicine, the Heads of the Queen's Colleges, in Ireland, seem to me to have acted wisely in departing from the precedent set them by other and older colleges and schools. Not to speak of the Winter session being divided into two distinct academical terms, with an interval of fourteen days between each, which gives a little breathing time to teachers and pupils, there are only *three* lectures a week on

A different description of lectures—it is this that I wish chiefly to urge on their consideration. I have already somewhat fully given expression to my views on this subject, and need only here refer to what I said in my last letter (pp. 29, 30), as to the distinction there drawn between the lower or rudimentary kind of teaching, and the higher or philosophical and practical—the latter essentially consisting in the exposition and application of principles—and, likewise, as to the representation there given of this higher teaching as the only kind of professorial instruction now needed, of any real value, or that will command the attention of students.

2. Further, I would have all teaching by lectures to be *based* on a text-book.¹ The lower kind of professorial instruction, which at present mostly prevails, can be best conducted by means of a text-book. The higher kind which I advocate could scarcely be carried on at all without one. Nor need the text-book be one prepared by the lecturer, provided it be on the whole such as meets his own views. Its being the production of another is in some

each branch, with the single exception of anatomy, on which there are five. The anatomical course, however, includes physiology (in other schools the subject of a separate course), and doubtless specific instruction in this branch.

¹ “It appears to be important for a teacher, in any branch of science, to follow the arrangement which seems to his own mind the most satisfactory; and important likewise for the students attending any course of scientific lectures, to have in their hands a text-book arranged on the same plan, and containing the same views.” (Dr. Alison, Preface to first edition of ‘*Outlines of Human Physiology*.’)

respects an advantage, as giving freer scope to the exercise of criticism. Even if it contain views which the lecturer cannot concur in, or statements which he deems erroneous, this is not without important advantages in teaching. The lecturer can correct and controvert. And in this way often, rather than by the simple exhibition of what is true in matters of fact, or the quiet inculcation of what is sound in doctrine, good is done. Clearer apprehensions are given, and stronger convictions as well as more abiding impressions produced.

When a text-book is thus made the basis of the course, and the lectures a commentary on it and a critical examination of its contents, the student is in the best possible condition for benefiting by the professor's instructions. It is to be presumed that the student fairly does *his* part towards reaping the advantages he enjoys ; and that, if not already familiar with the text-book, he at least studies it carefully as the course proceeds, and so enters the lecture-room prepared beforehand on the subject to be discussed. Thus furnished and thus acting, and willing to be yet further instructed, he can scarcely fail to profit by what he hears. What he understands tolerably well, he will be made to understand still better by the fuller exposition given of it in the lecture. What he understands imperfectly or has difficulty in comprehending, he will at least be in a condition to be enlightened on, when it comes to be more largely unfolded and explained by the lecturer. And, what is of real importance, knowing thus the general order of the subject, and the general scope of it, as well as his

own attainments or deficiencies in respect of it, his attention will be more easily sustained during the lecture, or he will be the better able to judge how to apportion the effort of it,—that is, he will know what parts of the subject require a larger measure of his attention, whether as being more obscure or manifestly of greater importance than others.

3. But lecturing is not the only kind of oral teaching. There is another kind well known at the English Universities under the name of *tutorial*, although unknown as yet, or scarcely known, in our medical schools either in England or Scotland; albeit the nucleus of it, and the warrant for it exist in the *class-examinations* held in all or almost all our schools. For this kind of teaching a text-book is indispensable. It may be said to consist in the teacher and his pupils going over a subject together in the way of mutual colloquial intercourse, taking the subject in the regular order of its parts, as set forth in the text-book used. So much of the book, a certain chapter or portion of a chapter is prescribed beforehand by the teacher, to be carefully perused and considered by each pupil in private. When they meet in the class-room, the teacher questions the pupils, and cross-questions them, correcting the answers he receives, or leading the pupils themselves to correct them when wrong; and himself introducing such explanations or illustrations of the subject in hand as may seem to him to be needed. That this kind of instruction may be carried on in a class-room with medical students, and with such

subjects as physiology and practice of physic, and that it may be made as interesting to them, and as fruitful of good, as formal lectures, I know very well from ample personal experience. And I know also that, while with many parts of a subject, or of a course, it may often supersede the necessity for any further instruction in the way of lecturing, it is the best possible introduction to this and the best preparation for it.¹

Moreover, as this kind of teaching—the tutorial—is necessarily of a rudimentary character (although not necessarily *exclusively* so), its combination with the kind of professorial instruction which I have already spoken of as the higher and the better may obviate any objections that may be supposed to attach to the latter, while its introduction into our schools would be rendered possible by a curtailment of the time at present devoted to attendance on lectures, a smaller number of which would then suffice. Forty or fifty lectures of the right sort, or two lectures a week, during a six months' course, would surely be enough for discussing the great principles of each branch, and leave an ample reserve of time for tutorial instruction.

¹ I have been much gratified to find, by a notice in the 'Lancet,' (April 26, 1856), that Professor Goodsir, of Edinburgh, has introduced this kind of teaching into his class, and that the result has been satisfactory. "The tutorial system (Mr. Goodsir well observes) is distinct from that of 'cramming.' Self-tuition cannot do everything. The pupil must be under training; and this system naturally prepares the mind for the study of anatomy. *In other departments his colleagues, he doubted not, would do the same;* and then the Scottish University system would be admirable indeed." For some excellent observations on the tutorial system, see Archdeacon Bather's 'Hints on the Art of Catechising.'

Forty or fifty lectures of the right sort on each branch would be as many as the teacher could well do justice to, or the student profit by. As lectures of the kind I mean, I would unhesitatingly point to the Oxford Bampton-Lecture Sermons for 1840, delivered by the present Provost of Oriel College. The subject therein treated of is large enough for an extended theological course; it is methodically discussed, too, and nothing, seemingly, that is essential which bears upon it is omitted. Yet it is discussed in eight discourses. But it is principles only that are discussed, details being assumed to be known and referred to merely, as far as necessary, for the purposes of proof or illustration. Models, in my judgment, of the highest style of professorial teaching, it would, I will venture to say, task the best powers of any of our teachers to prepare fifty such discourses on surgery or midwifery, or on physiology or anatomy. Such lectures, too, would be at once more acceptable to the student, and more useful to him, than twice that number of the ordinary kind; and, meriting a higher, they would, I doubt not, thankfully be accorded by him at least an equal reward to that at present exacted of him for the kind he is required to attend. Certainly, they need not and ought not to involve any curtailment of the teacher's emoluments, even although he confine himself wholly to professorial duty, and leave it to another and a younger teacher, placed under him or associated with him, to conduct the tutorial. The introduction of the latter as a separate and distinct element into our teaching could not reasonably be objected to, I think, on the score of the ad-

ditional expense it would entail on the student. Medical education cannot be said to be already too expensive. And with young men carrying on the work, and, as tutors, training themselves many of them for professors, the actual cost to the student for special tutorial instruction, should not be very heavy.¹

II. Next as to the examinations for licence.

1. I would first of all suggest that, at the end of each session, or, to give the whole of the recess for preparation, just previously to the beginning of the next, every student should at least be *permitted*, if indeed he should not be required, to be examined and that *once for all*, on the branches of study taken by him that year. Such an arrangement would tend to keep him diligently at work *from year to year*. It would tend, also, by relieving his

¹ In concluding what I have to say on the subject of medical education, I cannot forbear giving insertion here to the following pointed remarks by Dr. Lyon Playfair: "Lectures began when there were no books, and continued when the press was expensive. The age for them has passed. The *school* now meets our requirements. In it the teacher and the taught come into actual contact, and the former is able to drag out the latter from the dark holes in which his mind lies lurking. The lecturer only ejects his thoughts over the mass of his hearers, careless as to how far they take root; whether they do so or not he has no means of knowing, as he looks upon them as a mass, and not as the teacher does upon each as a separate individual for whose progress he is personally responsible." ('Letter to Committee of the Corporation of Southampton, on the best method of carrying into effect the Hartley Bequest,' April 19, 1858, published in the 'Hampshire Advertiser,' May 15, 1858.)

mind of the *anxiety* inseparable from an ordeal which embraces, as the present system does, a *multiplicity* of different subjects, as well as of the *distraction* necessarily attaching to his having to keep himself *au courant du jour*, for some years together, on the *minute details* of all those subjects, to enable him to *concentrate* his attention on each year's proper work. And his work would be much better done. Instead of his being for several years together a chemist, botanist, druggist, anatomist, and physiologist, all these at once and "master of none" (excuse the way I put the matter), the student would be all of them in their turn, and more likely to be proficient in each, as far as needful for the only purpose they are all to be considered as subserving,—the practice of medicine.

In recommending that the examinations should be from year to year, or *pari passu* with the student's progress, and then once for all, I do not mean that, in as far as the general principles or the essential facts comprised in any of the branches thus already disposed of, bear on the branches which the student has yet to be examined on, the examiners in these should be precluded from adverting to those branches, and testing the student's present knowledge of them in that relation. It is unnecessary, however, to dwell on this point, because I have another suggestion to offer, to be submitted presently, which if adopted would precisely define the extent and the limit of all such retrospective testing.

Further, I think it important that the examinations in all the fundamental or *theoretical* branches should be taken

at as *early* a period in the student's career as possible, consistently with the acquirement of a due knowledge of them, in order to give him sufficient time to apply himself, not merely to the *systematic* study of the higher or *practical* branches, and with a view to his passing the examinations on them *creditably*, but to his thus studying them *in conjunction* with hospital and dispensary attendance (clinical instruction and clinical-clerk and dresser-ship work included), and with a view also to *his own practical training* for the *duties* on which he is so soon to enter. By the practical branches, I mean surgery, midwifery, practice of physic, and medical jurisprudence. That these may be studied in the practical as well as in the systematic way, and with the two-fold object, just indicated, two whole years' *exclusive* devotion to them is not too long a period. At present, with most of the examining boards, the student has virtually but one year for these four branches.¹ Not that he is *compelled* to undergo his second examination, which commonly includes these four, the year after he has passed his first; but that this first examination being *postponed* to the end of the third year of study, and the second being *allowed* to be taken at the end of the fourth year, it *is* then taken by almost all students. Allotting, however, two years to those branches, I would still adhere

¹ It may be alleged that for two, at least, of these practical branches, Surgery and Practice of Physic, the student has the greater part of the preceeding three years. In as far, however, as he has this, and turns it to any effective purpose, in the study of these branches, he has the burden of seven instead of the burden of five branches laid upon him,—the addition made of a heavy burden to a burden already intolerable.

to the principle of annual examinations, and allow the student to be examined on two of them, say surgery and midwifery, at the end of the first—reserving practice of physic and medical jurisprudence for the next.¹

2. The next and only other, but the cardinal, suggestion I have to offer is, that every candidate should be examined, not as at present on the several branches of medicine *gene-*

¹ “There are many heads, and I confess mine to be one of them, which *no amount of labour* would enable to carry *so great a mass* of details *at one time* as that which would be required to pass a *rigid* examination on *all* the subjects comprehended in the list. Every one knows that many of these details, especially in descriptive anatomy, have little or no practical bearing. . . . I think it right that every student should learn these details, and that his knowledge of them should be tested; but I would test that knowledge *at the time he is learning them*; . . . and when about to go forth as a practitioner that his knowledge of the subject should be again tested upon *practical* points. It would be very easy to discover by his answers to questions in Surgery and Pathological Anatomy, how much of his earlier acquirements in descriptive anatomy he retained—whether *enough* for practical success.” (Dr. Carpenter, Letter to Sir James Clark, Bart., in ‘Letters on the Proof Report of the Committee of the Faculty of Medicine, University of London,’ p. 80.)

“My next proposition would be, to have *annual* examinations on *fixed, defined, and limited* subjects . . . and no large final, and, as it now is, *boundless* examinations. I think this grand examination *most pernicious* in its effects on the student’s mind, and ill calculated to effect its intended object, that of being a test of proficiency. . . . The student’s progress should be *step by step* ascertained; this were best ascertained by *half yearly* or *yearly* examinations. Here, with us, the first examination, on which a young man thinks his prospects and success for life depend, is most injurious to the mind and *the whole course of study*; its wide range gives a *hopelessness* as to being fully prepared, and the health of many has been permanently impaired. . . . I think the system of *gradual* learning, tested by *successive* examinations at *short* intervals, far preferable.” (Sir Henry Marsh, Bart., Letter to Sir James Clark, in ‘Letters on Proof Report, &c., University of London,’ p. 83.)

rally, but on these branches as represented by certain books. I have already repeatedly observed that, in the actual state of the medical sciences, it has become absolutely necessary to *circumscribe* and *limit*, and, in some way, *authoritatively* to *define*, what and how much of each branch shall be held sufficient to qualify for a licence to practise. *In no other way can this be done than by books.* And of books on every branch well adapted for this purpose there is no lack. Accordingly, in all that relates to the *scientific* acquirements of the candidate, I would have the whole process of testing conducted by means of examination-books and in no other way. I would have it made clearly known and *officially* intimated that this should be the mode of procedure, and that nothing not contained in the books used should be required of any candidate. Not, however, that the examiners should be satisfied with such a knowledge of the books as involved a mere exercise of the memory, and might be acquired after a few weeks' or months' hard reading, with perhaps the aid of a grinder; but such a knowledge as should clearly indicate that the candidate had thoroughly mastered them.

Such a mode of conducting the examinations would, I am persuaded, be productive of great good every way. Looking at it, in the first instance, with reference to its influence on the candidate's whole career as a student (the chief consideration), it would be eminently beneficial. It would enable him to see clearly what he has to do, and thereby impart a definite end and aim to all his studies. It would have "the special benefit of satisfying his mind

that at each step of his progress he is in the right path." He would feel that there was a specific task assigned him, something definite given him to do, which he might strive after, and in doing which attain even a point beyond. Nothing in my opinion would serve better, or so effectually, to guard him against loose and desultory ways, to inspire him with zeal, and incite him to diligence, in the prosecution of his studies. And were this the effect produced, it would serve infinitely better also, than the existing "boundless" system does or can, to accomplish the great object of the scientific part of the student's education, the acquisition of a sound and complete body of professional knowledge.

Again, looking at it with immediate reference to the examinations themselves, this mode of testing proficiency could not fail to prove advantageous to both the candidate and his examiners. It would give to both alike, what neither has at present, a firm footing, inasmuch as both would stand on known ground. It would impart confidence to the candidate in undergoing his examination, and satisfaction to the examiner in conducting it. The adoption of it would, I am sure, be received by all candidates as a very great boon: its introduction, I am equally sure, would strengthen the hands of all examiners amazingly. The former would feel that they could not well be taken at unawares by their examiners, and the latter, knowing this, and sensible also that the qualifications of candidates were subjected to a fair and reasonable trial, would have less delicacy and fewer misgivings than they not seldom

now have, in rejecting any who should show by their answers, or their manner of answering, that they had not studied the examination-books, or had studied them carelessly, and were ignorant besides or ill-informed on the subjects they were examined in.¹

So much for the broad outlines of this scheme for testing proficiency. The details are scarcely less important than the principle. During the late war, the Russian Government at one time accepted the proposals of the Allies, but rejected the interpretation, *i.e.*, the application of them. So a scheme, seemingly good and generally approved, may break down when attempted to be reduced to practice. It will be necessary, therefore, to say something as to the manner of carrying into effect the scheme in question.

First of all, in order to its working well, the plan I have suggested must have elbow room given it. A stereotyped scheme rigidly enforced on all the medical schools, and on all the examining boards, by a general council of control,

¹ I am exceedingly glad to find Sir Henry Marsh recommending that the examinations, besides being "annual," should be on "fixed, definite, and limited subjects." (See note p. 58.) In what way he would limit, define, and fix the subjects of the strictly professional examinations, he does not say. I cannot see how it can be done otherwise than by books; and, indeed, in regard to the subjects of the *general* or *preliminary* education, Sir Henry suggests that "on each subject plain *elementary* books should be written, *that students may know exactly what they are to be examined in.*" That they may do so, is surely as necessary in the matter of the professional as in that of the preliminary examinations, and books are as expedient to enable them to do it in the one case as in the other.

would certainly work ill. It would be detrimental also to the advancement of medical science. Yet there may be essential uniformity in a system without absolute sameness,—nay, with considerable diversity in its application. Adhering then to the *principle* of the scheme now before us, it might be worked out differently in different parts of the kingdom. A mode of working that might suit the English schools might not be the best for those of Ireland or Scotland. In particular, the scheme must be so applied as to adapt itself readily to the circumstances of different schools, and to special modes of teaching. Still more, it must be so applied as not to fetter the talents or cramp the energies of individual teachers. It is to the schools that we owe the far greater number of the discoveries that have been made in our science, and all, or almost all, our most valuable systematic treatises, as well as very many of our most esteemed monographs. To this, the full freedom of thought and action which our teachers have heretofore enjoyed has essentially contributed. And this freedom must still be continued to them. It is true that the examination-books used for examination purposes could scarcely fail to become the text-books used in the schools. Whether the teachers approved of them or not, they could scarce help using them: they would in a manner be driven by the force of circumstances to do so. This in itself I should not consider an evil or a hardship, but the reverse. The adaptation of the teaching in our schools (professorial and tutorial) to the books used by the examining boards, I should consider an advantage. And

it need not be otherwise than perfectly compatible with the full freedom of the teachers. The use, indeed, of the *same* books in *all* the schools would be destructive of this. It would besides operate mischievously every way—on the efficacy of teaching and on the advancement of science. And it would be absolutely intolerable. But its adoption would be as unnecessary as it would be objectionable.

Suppose, for example, that the several Universities of Scotland were simultaneously to adopt the principle of the scheme, nothing need hinder *each* of them having its own set of examination-books, the books being selected by the several professors, each in his own department, subject to the approval of the medical faculty or of the entire senate. I take the Scottish Universities first, in illustration of what I mean, because they are at once educational institutions and examining boards. A similar observation will apply to the University of Dublin and to Trinity College therein, and likewise to the Royal College of Surgeons of Ireland. Each of these, being at once and independently within itself both a school and an examining board, may have its own particular set of examination-books, selected in conformity with its own educational arrangements. The Queen's University in Ireland, with its affiliated colleges in Belfast, Cork, and Galway, stands on a somewhat different footing,—the university being exclusively an examining board, the colleges as exclusively educational institutions. Yet nothing need hinder an arrangement being gone into, whereby, out of regard to educational

objects, different examination-books might be used by the university, according to the particular college the students come from. In like manner, the University of London, the Royal Colleges of Surgeons of England and of Edinburgh, and the Society of Apothecaries, which are all of them examining boards only, but may be said to be affiliated with all the medical schools in the kingdom, need have no difficulty in making arrangements with the several schools respecting the examination-books to be used for their respective students. At the School of Guy's Hospital, for instance, Dr. Barlow's 'Manual of the Practice of Medicine' would probably be preferred for examination purposes to Dr. Watson's 'Lectures' on that subject, because used there for educational purposes; while at King's College the latter work might for the like reason have the preference. Be it so. There is no reason why it should be otherwise. It might easily be made matter of special arrangement between the several examining boards on the one hand, and Guy's Hospital and King's College on the other, that, on practice of medicine, students from the former school should be examined on Dr. Barlow's book, those from the latter on Dr. Watson's. And so in regard to surgery. University College in London would probably wish Erichsen's work on that subject, Marischal College in Aberdeen, Pirrie's, because used for teaching purposes in these schools, respectively, by Professor Pirrie and Professor Erichsen. Maintaining the principle in its integrity, I can see no real difficulty in the scheme being worked out after this fashion. It would not be

a difficult matter for the examiner in any particular branch to make himself master of *all* the books that *could* be used in his department.

Nor do I see why even still greater flexibility should not be given to the scheme. A student does not always begin and end his course of professional education at the same school. Indeed, probably, the greater number of students do not. Of those that complete their course at the University of Edinburgh, for example, and graduate there, not a few have mostly studied elsewhere. Now, to take that university again, for illustration sake, it seems to me but reasonable that, under *certain restrictions*, either the candidate should be allowed to *name* the books on which he desires to be examined, or that he should be examined on the books used in the school he has studied at for those branches he has attended there, and for attendance on which the certificates produced by him have been received by the university as satisfactory. By *certain restrictions* I mean that the university should have it in its power to decline recognising any particular examination-book, if it deem it insufficient for examination purposes, or inadequately to represent the branch it treats of,—a power this the same in kind as that which the university continually exercises in regard to the *teachers* of other schools (of whose teaching it can know nothing), recognising some, refusing to recognise others. But with this qualification, I can see no objection to such an application of the principle of the scheme, nor any difficulty in the working of it. I cannot see what need hinder Professor Miller from

examining a student who has taken his surgical course at University College, on Professor Erichsen's work on surgery, or a Marischal College student on Professor Pirrie's. If the book be a good one and every way sufficient, that I think is reason enough for its being used, if preferred by the candidate.

One other point yet remains for consideration, suggested by reflection on the foregoing, and itself suggestive of a combination of the optional or of the local, with the prescribed and imperative in the selection of examination-books. Everything has more than one side from which it may be viewed; and one-sidedness of view in any matter of importance is bad. Any *single* book, therefore, on any one of the several branches of medical study, might with reason be considered as conducive to such narrowness of view in the student, and at least two books on each be judged requisite to counteract it. As regards three of the practical branches, surgery, midwifery, and practice of physic, to which indeed I would add physiology, because so immediately underlying all these as to be really one with them, I quite concur in that opinion. I should regard it as important, that for each of them two books should be used. With respect, however, to the subjects of botany, chemistry, materia medica, anatomy, and medical jurisprudence, one good book should I think suffice. Desirable as two might be, they are not so necessary for these as for the others; and we must be careful not to weigh too heavily on the student. Restricting, then, the employment of two books to the branches named, two

special advantages would accrue from this arrangement, besides and beyond that resulting from the reason assigned for it ; *first*, that the one book would supplement what the other wants or is defective in ; and, *secondly*, that a book invaluable for its style or spirit, and justly regarded as classical, although either insufficient in certain respects, or by reason of the progress of the science more or less behind in its matter, might be retained on the list of examination-books when otherwise it would require to be set aside. A comparison of Dr. Alison's ' *Outlines of Pathology and Practice of Medicine*,' with Dr. Barlow's ' *Manual*' on that subject, will so far illustrate this observation. The former is much fuller than the latter on the principles of general pathology, and abounds more in general views of the nature and treatment of diseases, while it treats of departments of the subject on which Dr. Barlow is altogether or nearly silent. In all the higher qualities of a book, moreover, in directness of purpose and practical aim, in breadth of view, precision of thought, and condensation of style, it is not unworthy to take rank with any work on medicine either in ancient or modern times, and is altogether such a work as every student should read, as well for the cultivation as for the information of his mind. On the other hand, of Dr. Barlow's admirable work it may suffice to say that it is far richer and more copious in the details respecting individual diseases. In like manner, *e. g.*, I should consider it important that every student in midwifery, whatever other book he may have gained his information on it from, should have mastered

Gooch's 'Compendium,' old comparatively and in many respects defective as it now is. Inimitable in style, the spirit of the book is calculated to beget in the student the kind of *character* which the accoucheur should possess, to enable him to cope successfully with the trying emergencies of midwifery practice.

Were the principle of conducting the examinations by books, and by these exclusively, once adopted, one ulterior result would be, the production within a comparatively few years of a set of books of the highest excellence on every branch, in every respect suitable, as they would expressly be prepared, for educational and examination purposes, neither too large nor too small, at once comprehensive in their substance and condensed in their style. *Ubi stimulus, ibi fluxus*. The books would be wanted and in constant demand, while every good book that appeared would amply reward the labour bestowed on its production, and in due time pave the way to the production of a better. Not that there is even now any deficiency of good books on every branch; but that the experience of what is exactly needed to meet the requirements of the new system would lead to the publication of others still superior. A rivalry in this sphere of labour could not fail to be productive of great good. It would promote, and that powerfully, the great cause of medical education, and it would essentially contribute to the advancement of medical science and the improvement of medical practice.

The subject is by no means exhausted, but I fear your patience is. I will therefore only observe further, *first*,

that, in the event of either Mr. Cowper's or Lord Elcho's bill receiving the sanction of the legislature, it is only, as far as I can see, by some such scheme as I have here laid before you, carried into effect too in the liberal way I have suggested, that the object of the legislature in respect of a virtual uniformity of professional qualification all over the empire could be attained; and, *secondly*, with respect to any exceptions that may be taken to this scheme, that, in the raising of difficulties or of objections to a scheme, it is not always sufficiently considered on which side *the balance* of the evil and the good that is in it, lies,—or, in the comparing of one scheme with another, which has, *on the whole*, the advantage of the other. The scheme now in question would, in my view, be found on trial—and it is no new or untried thing—to possess advantages out of all proportion greater than any disadvantages that might attach to it, and to be in every way a vast improvement on the existing system, than which, “as *now* conducted,” or even “*however* managed,” Sir Henry Marsh remarks, “nothing *can* be worse.”

One or two words more. Feeling strongly as I do on this point, and as I have done these many years, I cannot forbear expressing myself strongly. And to what Sir Henry Marsh has said, I would add, that, all things considered, nothing can well be conceived more preposterous in itself than the present system,—nothing more unjust to candidates for licence, or more injurious to the cause of medical education. As things are, we set our medical students an impossible task. We exact of our candidates

for licence unattainable acquirements. The medical sciences themselves, in their full extent, are the measure of our demands. These sciences are boundless. Our examinations are boundless also. Forty or fifty years ago such a system was not so unreasonable as it is now. Anatomy and surgery were then taught by one professor. Botany, in as far as required, was an adjunct to the materia medica. Midwifery was nowhere required. Forensic medicine, as a distinct branch, had no existence, nor yet pathology, as distinct from the theory or the practice of medicine. Military surgery formed an integral part of general surgery. Chemistry was then a little child, and her sister physiology not much bigger—the two which have since risen to the highest distinction in the family circle, and come to exert the widest influence of any, both within it and without. In those days Apothecaries' Hall was not; and the Colleges of Surgeons examined only in anatomy and surgery. The examinations at Edinburgh were conducted by a staff one half the size of the present; the graduates were, almost all of them, the pupils of the examining professors, whose prelections served practically to define and indicate the kind and the extent of the questioning, while the dead language in which this was carried on materially circumscribed the work. It is far otherwise now. Yet in principle, our system of testing remains the same. One can understand how this should be,—how use and wont, the traditions of our forefathers, the way we ourselves have been brought up,—the very power or force of *inertia*, should have preserved it intact. But I am very sure that if a system of

examination for licence had now, for the first time, to be devised, the existing system, if proposed, would everywhere and by all be denounced as absurd.

To conclude. Our real business and concern as medical men is, as it has ever been, to minister to the sick, the afflicted, and the dying,—and the primary object of all our learning to fit us to serve well our fellow-men in that capacity. Let us see to it,—let those with whom it more immediately lies see to it, whether, in the altered position in which we stand, and in which the progress of our science has placed us—so different from what it was fifty years ago—and with the *responsibilities* of medical practice greatly *multiplied* and *heightened*,—the system of teaching pursued in our medical schools, and the method of testing adopted by our examining boards, be the best adapted to fulfil the end in view,—or whether there be not, as I maintain there is, ample room for improvement,—nay, an urgent demand for reform.

I am, &c.

POSTSCRIPT.

May 17, 1858.

THERE is now, I fear, but little prospect of either Mr. Cowper's, or Lord Eleho's, or any other like bill passing during the present session of Parliament. Must things therefore remain meanwhile as they are? In a 'Statement' put forth jointly, last year, by the Universities of Edinburgh, Glasgow, and Marischal College, Aberdeen, it is observed that, while, "during the period of two and twenty years," "the medical faculties of the universities of Scotland have introduced on their part many important improvements in medical education, and in the examination of candidates for their degrees, they have naturally been *deterred* from taking *still greater steps in advance*, and from adopting *more radical changes*, by the *yearly* expectation that a general legislative measure would have established *by authority*, ere now, such a *uniform* system of education and graduation as would have met with their approval."

There is matter for reflection here, a lesson of warning, a warrant for hope. Reading the 'Statement' shortly after I had finished these letters, I felt as if the ground was firmer under my feet, and I could see my way better towards a practical issue of my labours. It is surely

something to find such a body, so competent every way to judge in a matter of this sort, acknowledge the necessity of *radical* changes being adopted, and of *great* steps in advance being taken (for the greater implies the less, and the comparative degree the positive), in the education of medical students and the examination of candidates for degrees in medicine. Alas ! that they should have waited two and twenty years without giving effect to them. Not unreasonably, indeed, they have been looking all this time, as have others in England and Ireland, to the legislature, in the yearly expectation of such provisions being by law established as would have led to them. And waiting and hoping on, year by year, they have thus been cheated out of very nearly a whole generation, while very few of those who constituted their body at the beginning of it now survive ! Yet they might of themselves and independently have done all that they judged and still consider necessary. They do not allege that they have been *debarred* by any law from giving effect to anything, but only that they have been *deterred* by a law in prospect, and still in embryo. Doubtless, could they have foreseen at the outset such an issue to their anticipations, they would long ere now have carried their own plans into effect. Why should they wait a day longer ? They have as much or rather as little security now as at the first for a medical bill being passed. The present disruption of party ties among our public men, and the perplexing entanglements of political affairs, together with the divisions which still prevail among ourselves, are anything but encouraging. The chapter of accidents may let a

medical bill slip through Parliament; but it were folly to trust to this. "The chapter of accidents is the bible of the fool."

I trust the members of the medical faculties in the universities of Scotland will not consider it unbecoming in one, who, as a teacher and an examiner, had formerly intimate relations with two of them, and is graduate of a third, if, through you—yourself a Scottish graduate, holding, too, a high official position in one of them, and deeply interested in the welfare of them all—I venture to suggest that they should at once confer together, with a view to *united* action on the part of their universities, in a matter so important, and with a view also to the *immediate* adoption of those changes and the taking of those steps which they admit to be necessary.

I would, at the same time, entreat them to consider that those two and twenty years of *patient waiting* have been years of *rapid progress* in every branch of their department—of such progress as bids fair, if it go on as rapidly in the future as it has done in these past years, to make all teaching and learning and testing in medicine, by the present methods, and on the present system, almost impracticable. Everywhere, and with every branch, the tendency is towards specialization and subdivision, and to the growth, and often the prodigious, I will not say the inordinate increase, of each division thus specialized. Everywhere, and with every branch, there are persons who enter the profession as do others, and pass through the like curriculum of study, but afterwards exclusively devote them-

selves to special departments of medical practice, or, renouncing practice altogether, to the cultivation of special departments of medical science, either impelled thereto by the pure love of science, or led into it by circumstances, and all of them able to support themselves, in those narrow fields of enterprise, in ways not within the reach of the great mass of their professional brethren. And these persons, by laborious industry in their several spheres of action, are continually extending—each, a special division—and all, the general science. But “the make and constitution of things” have not changed, and cannot change with the progress of our science. The circumstances of the profession on the one hand, and the condition of society on the other, are and ever will be such, that the vast majority of those who make medicine their pursuit must live by it, must begin, too, as early as possible to maintain themselves in it, and must practice it in all its departments. Nor, speaking generally, can the mass of the profession give more attention to their science than is requisite for the due discharge of their professional duties, or be in any other or higher sense men of science than is needful to make them scientific and intelligent *general* practitioners. Science as such is not their proper business. Their province is life and death, disease and health, the pain and peril of child-birth,—the science of curing disease and preventing it, of aiding women labouring of child, of alleviating human suffering, of warding off death, or depriving death of its agony. This is the field assigned them to cultivate. How large the field is—how much there is to

do in it !¹ And with reference to the training proper for it and the qualifications needed in it, and in connection with this subject of educational reform, Dr. Alison long ago remarked, that, “by merely increasing the amount of learning, and by varied scientific acquirements, included in the compulsory education of medical practitioners, we cannot, by any means, ensure increased accuracy, or extent of information, or sounder judgment, in the apprehension or application of *those* medical facts and principles with which *the interest of the public* demands that they should be *most* intimately acquainted.”

With the medical sciences, then, what they are, and advancing rapidly to what no one can predicate,—even already so vast as “to render it impossible for any single individual to grasp the whole of any one,” and yet so related each to every other, and all of them directly or indirectly to the proper business of professional life, that a knowledge of every one of them is rightly enjoined on all students as the condition on which they shall be allowed to

¹ An adaptation: “We should apply ourselves to that which is our real business and concern. Knowledge is not our proper happiness. . . . Our province is virtue and religion, life and manners; the science of improving the temper and making the heart better. This is the field assigned us to cultivate: how much it has lain neglected is indeed astonishing.” (Bishop Butler, Sermon XV, ‘Upon the Ignorance of Man.’)

² ‘Brit. and For. Med. Review’ (1836), vol. i, p. 2. “The proper education of a medical man requires, in fact, the exercise not merely of those faculties by which facts are observed, and knowledge is acquired, but especially of those by which these facts are weighed and compared, a right judgment formed of their comparative value and importance, and the right inferences deduced from them.” (Ibid., loc. cit.)

become practitioners,—*the* question, it seems to me, above and beyond all others important, in relation to our profession, and especially for those that are to come after us in it, is—How, *under the circumstances*, are the general practitioners of this country to be trained for the efficient discharge of their peculiar duties, and their competency ascertained? The question of *privilege* and *legal position*, important as it is, may wait. Dependent on the will of the legislature, it must and it can yet wait awhile its good pleasure. But the other, already too long postponed, presses for an immediate settlement; and, fortunately, though it may be affected and will doubtless sometime be put under regulation by the legislature, it is at present no ways *dependent* on it for its solution. And sure I am, that if the medical professors in Scotland will only, now, again seriously address themselves to this practical question, and shall forthwith give effect to any sound scheme of medical education and of examination for degrees in medicine—keeping steadily in view “the practical objects for which medical science is cultivated,” the necessary conditions under which it has to be cultivated, and the actual state of the science—they will confer honour on themselves, and do unspeakable good to others—more immediately, to those committed to their charge—remotely, to the whole community. Nor let them longer be deterred therefrom by any fear that hereafter their work may be spoilt and their labour lost through the rude hand of the law. Rather let them believe that, by carefully

devising and putting forth such a scheme now, they will thereby, when a medical bill *shall be* enacted, have materially aided beforehand in the adjustment of the *general* scheme which that measure cannot fail to embrace. Neither let them be deterred from it by any considerations arising out of the recent introduction into Parliament of the Lord Advocate's Bill for University Reform. Let them anticipate, and by anticipating lighten, the labours of the commissioners to be appointed by the Crown for carrying into effect the provisions of the bill, in the event of the bill passing. Above all, and with reference to both bills, let them, while waiting and expecting, learn in this matter "to *labour* and to wait." And, bearing in mind the barren results of two and twenty years' expectation of the one, let them henceforth "trust no *future*," but, "letting the dead *past* bury its dead, act in the living *present*." ¹

My own views in regard both to the matter of education and the matter of examination are before them. Submitted to all whom they concern, I would specially and at the same time respectfully submit them to them. Not hastily taken up, but, as some among them know, the settled convictions of years, which years have served only to strengthen and mature,—formed, moreover, in the same field of experience as their own, and among themselves, in former days, in my capacity of student, teacher, and examiner, I submit them, also, in the confident persuasion that they will receive due consideration at their hands.

¹ Longfellow.

And here let me take occasion to supply an omission which escaped me at the proper time and place. I suggest, in my fourth Letter, a system of *annual* examinations, in doing which I am supported by the high authority of Sir Henry Marsh, and virtually by that of Dr. Carpenter. But you may ask, and my friends in the Scottish universities may ask,—How would you adapt this scheme of annual examinations to the case, by no means uncommon, of a student pursuing his medical studies, in different years, at different schools, taking say two *anni medici* at Glasgow, or three at Aberdeen, and then proceeding to Edinburgh, with the view of taking either one or two more *anni medici* there, and also of graduating there? My answer to this question shall be a very short one, and addressed to the professors themselves, happily acting in unison together, as their joint ‘Statement’ shows. To them I would say—Sirs! ye are fellow-labourers, set by the State, in the interest of the public, to discharge certain common duties, not to serve yourselves. Let not Aberdeen envy Edinburgh, nor Edinburgh Glasgow! Revive, in this matter, the old spirit of university fellowship—of free intercommunion among these your ancient ‘Republics of Letters.’ Why should not a student who has passed his two years at Glasgow, and then goes to Edinburgh, proceed thither with ‘*Letters Dimissory*’ from Glasgow, testifying to his diligence as a student there, and to his capacity, as ascertained by competent examinations, in respect of chemistry and botany, of anatomy, physiology, and materia medica? And pro-

ducing such letters, why should not these suffice at Edinburgh, “*absque ullo alio examine vel approbatione?*”¹ Why need he be required there to be again examined in these branches?—to the marring of the main object for which he goes to Edinburgh.

¹ Act of Parliament (Seotland), 1633, “ratifying the old foundation of the university in Old Aberdeen.” (Dr. Kilgour, ‘The Seottish Universities, and what to Reform in them,’ p. 4.)

THE END.

